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example, a constant portion (low density portion) point such as 5% point is extracted as the characteristic amount, and the density value of the X-ray image 600 is converted so that the extracted pixel value (x) reaches a density value of about 1.0 on the film.--

IN THE CLAIMS

Please cancel Claims 8, 15, 17, 18, 20, and 21, without prejudice or disclaimer of the subject matter presented therein.

Please amend Claims 1-7, 16, and 19, and add Claims 22-33 to read as follows.

A marked-up copy of those claims, showing the changes made thereto, is attached.

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1. (Amended) An image processing method for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, comprising:
a deleting step, of deleting a passing through area from said radiation image;
a preparing step, of preparing a projection of the image obtained in said deleting step; and
a setting step, of setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said projection.

2. (Amended) A method according to claim 1, further comprising a binarizing step, of binarizing the image obtained in said deleting step, wherein in said preparing step, the projection of said binarized image is prepared.

3. (Amended) A method according to claim 1, wherein in said preparing step, a weighting processing is performed in accordance with a pixel value of the image.

4. (Amended) A method according to claim 1, wherein in said preparing step, a weighting processing is performed in accordance with a pixel position of the image.

5. (Amended) A method according to claim 1, wherein in said setting step, said characteristic area is set based on secondary difference values of said projection.

6. (Amended) A method according to claim 1, wherein said object comprises a cervical vertebra.

7. (Amended) A method according to claim 1, wherein said pixel value characteristic extracted from said characteristic area is used to perform a gradation conversion processing.

16. (Amended) An image processing apparatus for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, comprising:
deleting means for deleting a passing through area from said radiation image;

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preparing means for preparing a projection of the image obtained by
said deleting means; and
setting means for setting a characteristic area, from which the pixel
value characteristic is obtained, of said radiation image based on said projection.

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19. (Amended) A storage medium for storing an image processing program
for extracting a pixel value characteristic of a radiation image obtained by radiographing an
object, said program comprising the codes for:

a deleting step, of deleting a passing through area from said radiation
image;

a preparing step, of preparing a projection of the image obtained in said
deleting step; and

a setting step, of setting a characteristic area, from which the pixel
value characteristic is obtained, of said radiation image based on said projection.

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22. (New) An image processing method for extracting a pixel value
characteristic of a radiation image obtained by radiographing an object, comprising:

a deleting step, of deleting a passing through area from said radiation
image;

a first analysis step, of obtaining a first area of said radiation image
based on an outline of the image obtained in said deleting step;

a preparing step, of preparing a projection of the image obtained in said deleting step;

a second analysis step, of obtaining a second area of said radiation image based on said projection; and

a setting step, of setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said first and second area.

23. (New) A method according to claim 22, wherein in said setting step, said characteristic area is set based on a comparison between said first and second area.

24. (New) A method according to claim 22, wherein in said setting step, said characteristic area is set based on a calculation between said first and second area.

25. (New) An image processing method for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, comprising:

a deleting step, of deleting a passing through area from said radiation image;

a preparing step, of preparing a projection of the image obtained in said deleting step;

a calculation step, of calculating an average pixel value, by dividing a value of said projection by corresponding number of projected pixels, for each value of said projection; and

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a setting step, of setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said average pixel values.

26. (New) A method according to claim 25, wherein in said setting step, said characteristic value is set based on a profile, of said radiation image, of a position determined based on said average pixel values.

27. (New) A method according to claim 25, further comprising a conversion step of performing a gradation conversion of said radiation image based on the pixel value characteristic.

28. (New) A method according to claim 25, wherein in said deleting step, said passing through area is deleted based on a pixel value distribution of said radiation image.

29. (New) A method according to claim 25, wherein said object comprises a cervical vertebra.

30. (New) An image processing apparatus for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, comprising:

deleting means for deleting a passing through area from said radiation image;

first analysis means for obtaining a first area of said radiation image based on an outline of the image obtained in said deleting means;

preparing means for preparing a projection of the image obtained by said deleting means;

second analysis means for obtaining a second area of said radiation image based on said projection; and

setting means for setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said first and second area.

31. (New) An image processing apparatus for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, comprising:

deleting means for deleting a passing through area from said radiation image;

preparing means for preparing a projection of the image obtained by said deleting means;

calculation means for calculating an average pixel value, by dividing a value of said projection by corresponding number of projected pixels, for each value of said projection; and

setting means for setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said average pixel values.

32. (New) A storage medium for storing an image processing program for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, said program comprising the codes for:

a deleting step, of deleting a passing through area from said radiation image;

a first analysis step, of obtaining a first area of said radiation image based on an outline of the image obtained in said deleting step;

96 a preparing step, of preparing a projection of the image obtained in said deleting step;

a second analysis step, of obtaining a second area of said radiation image based on said projection; and

a setting step, of setting a characteristic area, from which the pixel value characteristic is obtained, of said radiation image based on said first and second area.

33. (New) A storage medium for storing an image processing program for extracting a pixel value characteristic of a radiation image obtained by radiographing an object, said program comprising the codes for:

a deleting step, of deleting a passing through area from said radiation image;

a preparing step, of preparing a projection of the image obtained in said deleting step;